

Abstract

A method of vacuum and pollution-free arsenic extraction, wherein
increase the temperature of smelting chamber to 100-300°C and then hold
5 the temperature to remove the vapor and small quantity of dust in the
arsenic concentrate; Under residual pressure $\leqslant 50\text{Pa}$, increase the
temperature of smelting chamber and crystallization chamber to 300-500°C
and then hold the temperature to remove the volatilized arsenic sulfides;
Hold the temperature of crystallization chamber, increase the temperature
10 of smelting chamber to 500-600°C and then hold the temperature to
remove the gaseous element sulfur decomposed; Increase the temperature
of smelting chamber to 600-760°C and then hold the temperature, lower the
crystallization chamber temperature to 270-370°C and then hold the
temperature to get element arsenic; shutdown, lower the temperature,
15 charge the air, stripe arsenic product and conduct deslagging, and extract
fine gold using conventional method. This invention also provides devices
for the above mentioned method, including induction heating equipment,
smelting device, constant temperature crystallization device, automatic
hydraulic deslagging device, dust collection device, automatic temperature
20 control device, vacuum measuring device and vacuum extraction device.
Through large-scale production experiments, this invention completely
solves the arsenic pollution and safety problems long existed in the process
of arsenic smelting, and simplifies the process.